

## CLAIMS:

An optical scanning device for scanning an information layer by means of a radiation beam in a writing mode and a reading mode, the device comprising:

a radiation source for emitting said radiation beam,

an objective lens having an optical axis, for converging said radiation beam so as to form a scanning spot in the position of said information layer, and

a scanning spot power switch arranged in the optical path of said radiation beam, for switching the light power of said scanning spot between a first light power level at the writing mode and a second, lower light power level at the reading mode,

characterized in that said scanning spot power switch is further arranged for switching the size of the cross-section of said radiation beam between a first size at the writing mode and a second, larger size at the reading mode so as to switch the rim intensity of said radiation beam between a first rim intensity level at the writing mode and a second, higher rim intensity level at the reading mode, thereby switching the light power of said scanning spot between said first light power level at the writing mode and said second light power level at the reading mode.

2. An optical scanning device according to Claim 1, further including a collimator lens arranged between said radiation source and said scanning spot power switch and wherein said scanning spot power switch forms a telescope-like arrangement having a switchable transverse magnification between the writing and reading modes so that the cross-section of said radiation beam has said first size at the writing mode and said second size at the reading mode.

3. An optical scanning device according to Claim 1 or 2, wherein said scanning spot power switch includes a variable-focus liquid lens having a first meniscus and a second meniscus the shapes of which are electrically adjustable such that the cross-section of said radiation beam has said first size at the writing mode and said second size at the reading mode.

4. An optical scanning device according to Claim 1 or 2, wherein said radiation beam has either a first polarization or a second, different polarization and wherein said scanning spot power switch includes:

a polarizing beam splitter capable of transmitting and reflecting said radiation beam depending on its polarization,

a first mirror arranged on one side of said polarizing beam splitter and a second mirror arranged on another side of said polarizing beam splitter,

a first quarter-wavelength plate arranged between said polarizing beam splitter and said first mirror,

a second quarter-wavelength plate arranged between said polarizing beam splitter and said second mirror,

a third quarter-wavelength plate arranged between said polarizing beam splitter and said objective lens,

a polarization switch arranged in the optical path of said radiation beam, capable of changing the polarization of said radiation beam between said first and second polarizations such that the cross-section of said radiation beam has said first size at the writing mode and said second size at the reading mode.

5. An optical scanning device according to any of the preceding claims, wherein said detection system is arranged for providing a focus error signal and/or a radial-tracking error signal and in that it further includes a servo circuit and an actuator responsive to said focus error signal and/or said radial-tracking error signal for controlling the positions of said scanning spot with respect to the position of said information layer and/or of a track of said information layer which is to be scanned.

6. An optical scanning device as claimed in Claim 5, further including an information processing unit for error correction.

7. A scanning spot power switch suitable for an optical scanning device for scanning an optical record carrier by means of a radiation beam at a writing mode and a reading mode, the power switch being arranged for switching the light power of said scanning spot between a first light power level at the writing mode and a second, lower light power level at the reading mode characterized in that it is further arranged for switching the size of the cross-section of said radiation beam between a first size at the writing mode and a

second, larger size at the reading mode so as to switch the rim intensity of said radiation beam between a first rim intensity level at the writing mode and a second, higher rim intensity level at the reading mode, thereby switching the light power of said scanning spot between said first light power level at said first mode and said second light power level at said second mode.

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